GEOGRAPHICAL RECORD.

AMERICA.

THE NEW YORK HARBOUR IMPROVEMENT.—The work of deepening and widening the entrance to New York Harbour from the Narrows to deep water will be begun at once. The thirty-foot waterway now in use has a winding course through the channels known as Main Ship, Bayside, and Gedney. This passage is tedious, and the danger of collision is considerable. The East Channel is now to be deepened to forty feet and widened to 2,000 feet, and when the improvement is completed all vessels may hold their way in a nearly straight line from the sea to the Narrows, whence there is clear sailing to the wharves on both sides of the North River. The improvement will be completed in five years or less, and then the entrance to New York harbour will be unsurpassed by that of any other port.

Work is also about to begin on the deepening of the Bay Ridge and Red Hook channels from the inner end of East Channel, along the water-front of Brooklyn, to Buttermilk Channel. These channels are to be deepened to forty feet at low tide and widened to 1,200 feet, which will permit the development of dockage facilities along several miles of the Brooklyn water-front not now utilized. These improvements have been duly authorized by Congress. The proposed improvement of Buttermilk Channel is now before the House of Representatives. When all these improvements are carried out the East River fronts of Manhattan and Brooklyn Boroughs will have quick and safe communication with deep water and the commercial facilities of the port will be greatly increased.

ANTHRACITE IN THE UNITED STATES.—Practically all the anthracite of the United States is mined in an area covering only 480 square miles in northeastern Pennsylvania. It is mined mainly along the banks and in the valleys of three rivers: along and near the Susquehanna, with the largest centres of the industry at Scranton and Wilkesbarre; along and near the Lehigh, with the region around Mauch Chunk as the most prominent field; and along the Schuylkill, with Pottsville as the chief shipping point. It was a Pottsville furnace, in 1839, that won the prize of $5,000 offered by Philadelphians for the first successful smelting of iron ore with the use of anthracite. The fact that the Lehigh and Schuylkill lead to the Delaware and Philadelphia gave that city a great impetus in manu-

facturing in the days before railroads supplanted water carriage for anthracite. Even though a great strike, such as that which has recently terminated in the anthracite region, should be long continued, the resulting dearth of this fuel would have no appreciable effect upon iron production, because, though a little anthracite is still used for ore smelting, it has been almost wholly supplanted by bituminous coal.

EMIGRATION TO ARGENTINA.—According to the London *Times*, the Argentine Government has granted a large concession of land in its northeastern province, Formosa, in the Gran Chaco, and 20,000 Japanese farmers are to be settled in the eastern part of the province. This eastern portion of Formosa, near the Paraguay River, is the only part of it that is yet cultivated. It is rich in soil, forests, and waterways, and yields abundant crops of maize, tobacco, and sugar cane.

EUROPE.

SPAIN AND THE GREENWICH MERIDIAN.—A decree by the Spanish Government declares that after Jan. 1, 1901, time throughout Spain and the Balearic Islands, in all the public offices and courts, and in the railroad, telegraph, mail and steamship services shall be regulated by the time of the Greenwich Observatory. The railroad and the telegraph offices in Spain have heretofore used Madrid time, and the official time throughout Spain has been determined by the meridian of each locality. The substitution of Greenwich time will be a convenience not only to the Spanish nation but to all other countries in which the telegraph is used in business relations with Spain.

The official time in Portugal is that of the Royal Observatory, which is nearly thirty-seven minutes slower than Greenwich time. France and Portugal are now the only countries of western Europe that still maintain their own time standards.

IRRIGATION IN SPAIN.—The Government of Spain decided, in May last, to construct reservoirs and irrigation canals for enlarging the agricultural area. The country has therefore been divided into seven irrigation districts, and preparatory work has begun. The most of Spain receives less precipitation than any other part of Europe excepting the centre of the Kola peninsula, on the north coast of Russia, and the southeast coast of Russia around Astrakhan. The mountain system of Portugal and Spain, not far from the Atlantic border, prevents the moisture-laden west winds from carrying their burden of rain to the inland districts; thus, while there is

enormous rainfall among the Cantabrian mountains in the north and ample precipitation in quite a large part of western Spain, the great central plateau and the western Mediterranean coast have an inadequate supply. Many of the rivers have cut very deep channels, and it is likely that the cost of raising the water from some of them would exceed the advantages to be gained. The Government estimates, however, that in the valley of the Ebro river alone 336,000 acres may be reclaimed. The irrigated lands in the valleys of the Ebro and Tagus are yielding twelve times as much fruit as the dry lands.

THE PALUTNOTCHNIE CANAL.—A telegram from Odessa, on Oct. 5, reported that the Russians had completed the Palutnotchnie Canal at the mouth of the Kilia, or northern branch of the Danube delta. More than sixty-three per cent. of the Danube waters have reached the Black Sea through the Kilia, but an extensive bar at the mouth of the stream has prevented that branch from being available for navigation except by small vessels. The St. George, or southern branch of the delta streams, has no commercial importance, and only the Sulina or middle branch, receiving but eight per cent. of the Danube, has afforded a passage for commerce to and from the Black Sea. By the improvement now made at the Kilia mouth, Russia has opened another important waterway for the Danube trade. Heretofore, Russian vessels on the Sulina have had to pass through Roumanian territory; but on the more northern route now opened they will skirt the southern border of the Russian province of Bessarabia for a long distance. It is expected that the new route will give considerable impetus to Russia's trade with the Balkan States.

MAPS SHOWING NATIONAL PROGRESS.—A number of German map houses have recently given much attention to the production of maps showing the empire's present development in respect of industries, colonial expansion, sea power, merchant marine, and so on. The aim is to present graphically the resources of the empire and its achievements and tendencies in the world of work. The fine map by Prof. Paul Langhans, published in *Petermanns Mitteilungen*, in May last, is a good example of these productions. The purpose of the map is to show the sea industries of the German coasts. Most of the information is conveyed by symbols. The number of regular steamship lines, vessels and docks, the amount of tonnage of each port, the total sea trade of each port for 1898, the shipbuilding centres and number of dry docks, the fishing ports,

the towns where fish-curing is carried on, the chief fish markets, the routes by which fish are taken to Berlin, the distribution of the fisheries along the coasts, the distribution of coast population, and other information are shown with perfect legibility. The map gives an admirable bird's-eye view of all the industrial relations of the German coasts to the sea.

AFRICA.

MR. MOORE'S EXPEDITION TO LAKE TANGANYIKA.—Mr. J. E. S. Moore, whose party recently returned from Lake Tanganyika, read an account of his work before the Royal Geographical Society on November 26. The most important part of his paper related to the evidence he collected, that none of the great lakes of Central Africa, except Tanganyika, shows any sign of having formerly been connected with the sea. He found that Lake Nyassa has entirely the character of a typical fresh-water lake. It shows no trace of the prawns, the jelly-fishes, or the halolimnic mollusca (pertaining both to salt and fresh water) that are found in Tanganyika. While Nyassa lies in the southern extension of the same series of faulted valleys that also contain Tanganyika, the valleys of these lakes are not continuous. He found no vestige of any of the halolimnic animals in any of the lakes in the Rift valley north or south of Tanganyika, but this fauna did appear to extend into the Congo valley. It was only necessary for this extension to cover some eighty miles to bring it into communication with the great circular basin of the Congo itself. Much of this basin was formerly covered by the sea, and he was, therefore, strongly inclined to believe that the connection which the lake once had with the sea, and which resulted in the introduction of sea animals into Tanganyika, was on the west or Congo side of the lake.

THE DESICCATION OF LAKE NGAMI.—The desiccation of Lake Ngami, in South Africa, has made very rapid progress in the past ten or twelve years. When Livingstone reached the lake in 1849 he found it covering an area of about 300 square miles. The lake has now entirely disappeared. Its place is wholly occupied by a somewhat marshy plain covered with reeds, and no vestige of water surface is to be seen. The Taoge affluent has entirely dried up for about twenty miles from the lake, and above that point it is gradually disappearing. The inhabitants have abandoned their numerous villages around the lake, and only a few cattle-raising tribes remain.—(*Geographische Zeitschrift*, 1900, p. 343.)

ASIA.

THE DESICCATION OF THE PAMIR LAKES.—Lieut. O. Olufsen, of Denmark, has continued the researches which he began in the Pamirs in 1896. The first object of his latest expedition was to study the Yechil Kul, a lake in the eastern Pamirs, which is now much smaller than formerly. He hoped by means of precise hydrographic measurements to get an idea of the progressive diminution of this lake and of others in the neighborhood which, at one time, were a part of it. The desiccation of these lakes is one of the phases of the marked climatic changes in that region. The quantity of water formerly available for irrigation in Turkestan and Bukhara has diminished, and a number of oases once cultivated have been abandoned. This phenomenon has been caused by the diminution of the glaciers on the Pamirs which feed the Syr Daria and the Amu Daria, almost the only sources of life in those regions. The quantity of water derived from Pamir snows seems to have long been diminishing, not because less snow falls but on account of the erosion which is lowering the ridges and filling up the valleys. Thus the wind has greater sweep, and the snow is blown away as it is in vast expanses of Tibet. One of the affluents of the Amu Daria passes through the Yechil Kul, and the gradual drying up of that lake shows how the ancient Oxus is being deprived of an important source of water. The lake is now only thirty-seven miles in circumference, and its greatest depth is about 130 feet. There are five other lakes in the neighborhood, all of which are salt and surrounded by salt fields, though formerly they were fresh and were a part of the Yechil Kul, which at that time had a circumference of at least 125 miles.—(*Verhandlungen* of the Berlin Geographical Society, 1900, Nos. 2 and 3).

MISCELLANEOUS.

THE POPULATION OF HAWAII.—A census *Bulletin*, issued in November, shows the population of Hawaii on June 1, 1900, to have been 154,000—a growth of 41.2 per cent. over 1896, when the inhabitants numbered 109,020. Of the seven important islands, Oahu has the largest population, and about two-fifths of its 58,504 inhabitants live in Honolulu. Hawaii island has 46,843 inhabitants, the large expansion of the sugar industry having drawn many immigrants there since 1890. Maui, whose industries have been revolutionized by irrigation and its tillable lands practically all taken up, stands third with 25,416. Kauai, which has some very productive sugar and rice plantations and good grazing lands but almost no native population, comes next with 20,562. Molokai, on whose north shore the two

leper settlements are situated, and little Lanai, south of it, have together 2,504 inhabitants, and are the only islands that have decreased in population since 1896. Niihau, the most western island of the group, is practically owned by one white man, and its population is only 172. The percentage of increase in the entire group in the past ten years is 71.1. In other words, the population has increased over seven-tenths in the past decade. The great development of cane sugar-growing has been the largest material factor in promoting this rapid increase in population. The islands are the third largest producer of this commodity in the world. About 300,000 tons of raw sugar are produced every year, and nearly all the money invested in agriculture goes into sugar-planting.

FALCON ISLAND REAPPEARS.—*La Géographie* (Oct., 1900) says a letter has been received from Mr. Vossion, the Consul General of France in the Tonga group, announcing that Commandant Ravenhill of the cruiser *Porpoise* reports the re-emergence of Falcon island, which is now about ten feet above sea-level. In April, 1899, it was reported that after a brief life of fourteen years Falcon island had ceased to exist. The island was formed by a great volcanic eruption at the bottom of the Pacific in 1885. It appeared above the surface about thirty-five miles from the island of Tofoa, in the Tonga group. A submarine volcano had reared, from the bottom of the ocean, a great mass of ejecta, and the outpourings rose above the water. The island consisted of two distinct parts. One of them was a hill of gentle slope and wide base, whose height was 153 feet. The other part was a flat extending away from the base of the hill and only ten to twelve feet above the high-tide level. The island was merely a bare, brown heap of ashes, destitute of vegetation save for a half-dozen seedling plants. Great rollers from the sea swept up the black shores, and Mr. J. J. Lister, who visited the island a few years before it disappeared, reported that it was rapidly being torn to pieces by the waves. It finally disappeared last year, and its reappearance now is doubtless due to another volcanic eruption.

THE GULF STREAM MYTH.—The September number of the *Monthly Weather Review* has an interesting article with the above title, which says that

> by itself alone the Gulf Stream has as much effect on the climate of northwestern Europe as the fly in the fable had in carrying the stage coach up the hill.

It adds that the mild climate of northwestern Europe is due, not to the Gulf Stream, but to the prevailing eastward and northeast-

ward drift of the air currents, which distribute the heat conserved by the whole of the Atlantic Ocean north of lat. 35°.

The article is a refutation of the old story that the Gulf Stream, with its genial warmth, makes Norway habitable, keeps the harbour of Hammerfest north of the Arctic Circle free from ice, and gives an agreeable climate to the whole of northwestern Europe.

It may be added that about ten years ago the *Proceedings* of the Royal Geographical Society said it would

> probably take a generation or two to eradicate the old erroneous notions of text-books and popular treatises concerning the Gulf Stream.

From the time of the *Challenger* soundings to the present all evidence collected by such experienced hydrographers as Carpenter, Buchanan, Findlay, Thoulet, Agassiz, and others, shows that the Gulf Stream, as such, ceases to exist somewhere east of Newfoundland.

POLAR REGIONS.

LETTERS FROM PEARY.—Mr. Herbert L. Bridgman, secretary of the Peary Arctic Club, printed in the Brooklyn *Standard Union* of November 26 the following extracts of letters from the explorer, communicated by the family of Mrs. Peary in Washington.

These letters from Peary were carried by natives to the camp of the Stein party at Cape Sabine, Ellesmere Land, and were taken to Cape York by Dr. Kann, who left Greenland on the 9th of June, in the steamer *Eclipse*, and landed at Dundee, Scotland, November 9.

FORT CONGER, LADY FRANKLIN BAY,
March 31, 1900.

Just a line to go down to a whaler by returning natives. I arrived here at midnight of the 28th, twenty-four days from Etah. Six and one-half days of this time we were held in camp by heavy windstorms. The doctor and Henson each left Etah with natives before we arrived here. The journey was a tedious one, owing to the storms, but not an uncomfortable one for me. A number of the dogs died on the way, but I had an ample number for the work ahead. Twenty-one musk oxen were killed in sight of the fort the day before I arrived, so we have an abundant supply of fresh meat.

After resting and feeding the dogs a few days longer I shall go on with Mott and the best Eskimos up the northwest Greenland coast. The Doctor and the other Eskimos will remain at the fort, hunting. I am in good condition, and the journey shows me that I am myself again. If I do my work this spring I shall come back and hasten down to meet the ship, and turn back with her. I hope to write again by natives whom I shall send back from some point up the Greenland coast. Dr. Dedrick wishes to be remembered.

CAPE D'URVILLE, GRINNELL LAND.

I write this note on the chance of Stein and Dr. Kann reaching Upernavik by way of Melville Bay. The fall and winter passed comfortably at Etah, without even a day's indisposition on my part. I have husbanded myself carefully. My feet have given me very little trouble, and now I feel that I am myself again. I am now at the *Windward's* winter quarters, with the rear division. Mott and the doctor are ahead, with two other divisions, all on the way to Conger. All but a few of the natives will return at once from there, leaving a few with me. I shall push on from Conger without delay, perhaps by way of the Greenland coast. I shall strain every nerve, and, God willing, shall do my work this spring, that I may come back this summer. I send duplicate of this to Cape York for a whaler.

(Dated March 12, 1900.)

This is the first direct information received from Peary since August 28, 1898, and it is most encouraging evidence of his unabated resolution, activity, and energy. He and his companions were in perfect health, and they had abundant supplies for the task before them. There is every reason to believe that this task will have been accomplished in the early summer of 1901, and that Peary will join his wife and child at Etah, to return with them in the *Windward*.

THE STEIN EXPEDITION TO ELLESMERE LAND. — Dr. Robert Stein, with two companions (Dr. Leopold Kann and Samuel Warmbath), landed at Cape Sabine, Ellesmere Land, August 5, 1899, to carry out a plan for the exploration of that region, formed by Dr. Stein. Dr. Kann, in June of this year, took passage on the Scotch whaler *Eclipse*, at Cape York, and landed at Dundee, November 9. He brings a report of the experiences of the party in Ellesmere Land.

Their first care, after setting up their tent, was to build a house for the winter—a labour of three tedious months, during which they suffered with the cold. The house was named Fort Magnesia. It stood in a corner sheltered from the north and northwest winds, and contained two rooms—a store chamber and a living room. In the latter the cooking was done. The party enjoyed excellent health all winter. Before reaching Cape Sabine, Dr. Stein secured a sledge and ten Eskimo dogs, which were kept alive for months, though it was difficult to obtain sufficient food for them.

The period of total darkness lasted 123 days at Fort Magnesia. During this time it was impracticable to explore at any distance from the base of operations; but a number of astronomical observations were made, and bears, foxes, hares, and other game were caught. Mr. Warmbath was an active hunter, and he secured many speci-

mens of the fauna, though there were practically no birds, other than a few gulls.

Late in the winter Fort Magnesia received three visits from members of the Peary party, Peary himself coming on March 6. It became clear to Dr. Stein that Peary would not be returning to the United States in the summer of 1900, and that there was no certainty of conveyance homeward for his own party. He had provisions to last a year, but not more, and it became necessary to utilize the next few weeks and the remaining stores in getting a little nearer to civilization, instead of pursuing the exploration for which the camp at Fort Magnesia was founded.

Dr. Stein had already made sledge journeys to the westward, and found evidences that Sverdrup had tried to locate the western and northwestern boundaries of Ellesmere Land. Dr. Stein has learned that large herds of musk oxen exist in Ellesmere Land, and remains of Eskimo houses, over a hundred years old, have been found. Dr. Kann declares that he and Dr. Stein made a number of valuable discoveries, but he gives no details.

Dr. Kann was under obligation to return to Austria in the autumn. In the middle of March he started with an Eskimo guide for the Greenland coast, and was followed in April by Dr. Stein. In June they reached Cape York, and there met the *Eclipse*. Dr. Kann went on board the whaler, but Dr. Stein made his way back to Fort Magnesia, with the purpose of continuing the exploration of Ellesmere Land.

Dr. Kann reports that Capt. Sverdrup's party wintered on Cocked Hat Island, northwest of Cape Sabine.

THE BROOKLYN STANDARD UNION, of December 8, announces that the personal effects of the members of the Lady Franklin Bay Expedition, recovered at Fort Conger by Mr. Peary in May, 1899, have been distributed by the Peary Arctic Club to Gen. Greely, Hospital Steward Biederbick, and Sergeant Francis Long, survivors of the expedition, and to the representatives of the many deceased members.

The Beaumont sextant, recovered at the same time, and returned to the Lords of the Admiralty in April last, has been deposited in the Museum of the Royal Naval College at Greenwich.

THE MARCH TO THE NORTH BY CAPT. CAGNI.—The *Bollettino* of the Italian Geographical Society publishes (Serie IV, Vol. 1, No. 10) the account of the sledge journey, in March and April, when the

highest north was reached by the expedition under the Duke of the Abruzzi.

The definitive start was made on the 11th of March, in very bad weather, with the thermometer at −50° Cent. (58° below zero, Fahr.) and the ice hard and rough in places, and sometimes covered with heavy snow.

On the 21st, Capt. Cagni sent back Lieut. Querini, the guide Felice Ollier, and the machinist Alfred Stoekken. Nothing has since been heard of these three men.

On the 31st of March a second party, composed of Dr. Cavalli, the guide Savoye, and midshipman Cardenti, was sent back to the camp, and reached it in twenty days.

Capt. Cagni continued his journey with the two Alpine guides, Petigax and Fenouillet, and Canepa, a seaman. They had six sledges and sixty dogs, and food for two months; but the supplies began to give out, and the dogs died or had to be killed. At 85° N. the ice became easier, and at last they reached Nansen's furthest north—86 degrees 14 minutes. After a careful observation to make sure of this they passed beyond, and on April 26, 1900, they touched 86 degrees 33 minutes N., at about 56 degrees E. Long., when it was decided to turn back. They reached the camp on the 23d of June with two sledges and seven dogs.

A TELEGRAM FROM CHRISTIANIA, of November 27, announces that the Duke of the Abruzzi has completed his arrangements for the relief expedition next spring to Franz Josef Land in search of the Norwegian machinist Stoekken, and the two Italians, who were lost during the recent expedition.

The search party will be commanded by Captain Stoekken, father of the machinist, who has conferred with the Duke of the Abruzzi and Dr. Nansen.

BARON TOLL'S expedition, it is reported, is wintering in the Kara Sea, and will send a party in the spring to the Taimyr Peninsula, where it will establish a station for scientific observations.

THE GERMAN AND BRITISH expeditions to the Antarctic will cooperate in every way. The start is to be made in August, 1901, and the plan divides the Antarctic regions into four quadrants:

The Victoria, which includes Victoria Land, and extends from 90° to 180° East;

The Ross quadrant, from 180° to 90° West;

The Weddell quadrant, from 90° West to 0° (Greenwich meridian), the Weddell Sea;

The Enderby quadrant, from 0° to 90° East. This includes Enderby Land.

The British expedition will devote itself to the Victoria and the Ross quadrants, and the German will explore the Weddell and the Enderby.

The German plan contemplates a stay of three years, and the British, it is hoped, will be able to raise the funds needed to perform equal service.

DR. NORDENSKIÖLD has bought for his South Polar expedition the *Antarctic*, the vessel used by Lieut. Amdrup in his successful East Greenland voyage.